

Remarks

In response to the Office Action mailed May 28, 2008, Applicants request reconsideration of this application in view of the amendments above and the following remarks.

Claims 1-6, 8, 9, and 24-38 stand rejected, and claims 39-42 are new. Claims 1, 24, 29, and 31-38 are amended. Claims 6, 7, and 28 are cancelled, and claims 10-23 are withdrawn.

I. Rejections over the Prior Art

A. Claims 1-5, 8-9, 24-27, 29-30, and 42

Independent claim 1 now requires that “the functional group is not the product of an anionic initiator.” This limitation is supported by the disclosure of initiators (including functional initiators) at page 15 of the specification, and the disclosure of functionalization without the use of initiators at pages 11-12 and 17. Such negative limitations are allowable under MPEP § 2173.05(i): “If alternative elements are positively recited in the specification, they may be explicitly excluded in the claims. *See In re Johnson*, 558 F.2d 1008, 1019, 194 USPQ 187, 196 (CCPA 1977) ([the] specification, having described the whole, necessarily described the part remaining.)” MPEP 2173.05(i). Along these lines, the specification discloses functionalized anionic initiators and functionalization without using anionic functional initiators. Thus, the limitation is sufficiently supported.

Independent claim 1 explicitly distinguishes over the cited reference, U.S. 7,238,751 which merely discloses functionalization by functional initiators. Dependent claims 2-5, 8-9, 24-30, and 42 are also patentably distinct for at least this reason, among others.

B. Claims 31, 32, and 40

Independent claim 31 recites: “wherein functional groups are located throughout the

outer layer of the nanoparticle.” This limitation is supported at page 17, lines 18-19 of the specification. This limitation embodies the structural difference between functionalization by functional initiators (which imparts only one functional group at the outer rim of one or more nanoparticle polymer “brush” chains) and functionalization by the process taught by the current specification (functionalization at several locations throughout the polymer “brush” chains in the outer layer).

This limitation is not taught or suggested by the disclosure in the cited reference. Therefore, claim 31 and its dependent claims 32 and 40 are believed to be patentable for this reason, among others.

C. Claims 35-39 and 41

Independent claim 35 also recites “wherein functional groups are located throughout the outer layer of the nanoparticle.” Therefore, it is also patentably distinct over the cited reference for the same reasons stated above. Dependent claims 36-39 and 41 are also patentable over the cited reference for at least the same reasons.

D. Dependent Claims 24-27, 29-30, 38, and 40

Each of claims 24-27, 29-30, 38, and 40 either requires or depends on a claim that requires that the functional group is combined or associated with the outer layer only after micelle formation or after the nanoparticle formation. This limitation is supported at page 11, lines 9-10. This limitation is not present in the cited reference, because, in the reference, a functional group provided by a functional initiator would be present when polymerization of each polymer chain begins—before the micelle formation occurs. Accordingly, dependent claims 24-27, 29-30, 38, and 40 are believed to be patentable for this additional reason.

E. Dependent Claims 29, 34, and 36

Dependent claims 29, 34, and 36 are limited to a set of functional groups that does not include the functional groups disclosed in the cited reference. The Markush group in these claims includes only maleic anhydride, azo, and epoxide groups and mixtures thereof. Therefore, these claims are believed to be patentable for this additional reason.

F. Dependent Claims 32, 33, and 37

Claims 32-33 require that the functional group itself, rather than the generic nanoparticle, be complexed with a metal. This limitation is not disclosed, taught, or suggested in the cited reference. Therefore, these claims are believed to be patentable for this additional reason.

G. Dependent Claim 41

Dependent claim 41 recites the same limitation that is present in independent claim 1. Accordingly, it is believed to be patentable for the reasons expressed above.

H. Dependent Claim 42

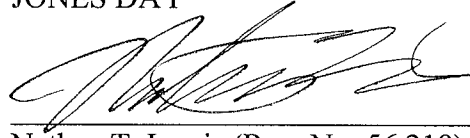
Dependent claim 42 recites the same limitation that is present in independent claims 31 and 35. Accordingly, it is believed to be patentable for the reasons expressed above.

III. Conclusion

For the foregoing reasons, Applicants believe that the application is in condition for allowance. The Examiner is invited to call the undersigned attorney if this response does not put the case in condition for allowance and it might be helpful in expediting prosecution of this case.

Respectfully submitted,

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A handwritten signature in black ink, appearing to read 'Nathan T. Lewis', written over a horizontal line.

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